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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,894	08/06/2003	Andreas Beckmann	239538US0X	7343

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ALEXANDRIA, VA 22314

EXAMINER

BULLOCK, IN SUK C

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/634,894	Applicant(s) BECKMANN ET AL.	
	Examiner In Suk Bullock	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claim 17 rejected under 35 U.S.C. 112, second paragraph, is withdrawn in view of the Amendment filed on January 6, 2006.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/467,844 in view of Smith, Jr. et al. (5,177,289) and Evans et al. (5,877,372).

Although the conflicting claims are not identical, they are not patentably distinct from each other because they are both directed to oligomerization of isobutene in the presence of a solid acid ion exchange resin. While the claims in the instant application are directed to a solid acidic ion-exchange resin having acidic protons wherein at least

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one acidic proton of said ion-exchange resin has been changed for a metal ion, the claims in the copending application are directed to a solid acidic ion-exchange resin containing sulfonic acid groups whose protons have been partly replaced by metal ions. The claims of the instant application differ from the claims of the copending application in the limitation of the "sulfonic acid groups." Therefore, the claims of the instant application encompass the claims of the copending application.

It is noted that claims 8-10 in the instant application recite the limitations of fractionating the effluent into dimers and unreacted C₄-olefins including 1-butene, hydrogenating the dimers and further reacting isobutene with alcohol.

The reference to Smith, Jr. et al. is cited for teaching etherification of isobutene with an alcohol (col. 5, line 65 to col. 6, line 6).

The reference Evans et al. is cited for teaching dimerization of isobutene comprising fractionating an effluent and hydrogenating the isobutene dimer (col. 2, lines 23-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the conventional distillation step to recover the desired product, e.g., isobutene dimer, and the further step of hydrogenating the dimer to isooctane as shown by Evans because isooctane is a highly desirable product as a gasoline pool blending component (col. 2, lines 45-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included the conventional etherification step as shown by Smith, Jr. et al. because Smith, Jr. et al. has taught that the highly complex ether

product produced by the etherification of isobutene with an alcohol is desirable as an octane improver for gasoline (col. 6, lines 23-26).

Claims 15-17 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 2 of copending Application No. 10/467,844 in view of Manning (4,313,016).

Although the conflicting claims are not identical, they are not patentably distinct from each other because they are both directed to oligomerization of isobutene in the presence of a solid acid ion exchange resin. While the claims in the instant application are directed to a solid acidic ion-exchange resin having acidic protons wherein at least one acidic proton of said ion-exchange resin has been changed for a metal ion, the claims in the copending application are directed to a solid acidic ion-exchange resin containing sulfonic acid groups whose protons have been partly replaced by metal ions. The claims of the instant application differ from the claims of the copending application in the limitation of the "sulfonic acid groups." Therefore, the claims of the instant application encompass the claims of the copending application.

Another difference between the claims of the instant application from that of the copending application is the removal of 1-butene from the reaction product by distillation.

The reference to Manning teaches contacting a C₄ stream comprising isobutene, 1-butene, 2-butene, normal butane, and isobutene with an ion-exchange resin catalyst wherein the isobutene is oligomerized. The effluent from the oligomerization process is

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sent to a fractionator to remove the oligomers and to recover 1-butene (col. 2, lines 35-41 and col. 4, line 54 to col. 5, line 12).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have removed 1-butene from the oligomers by conventional distillation as taught by Manning because Manning has taught that 1-butene is desirable for homopolymerization or copolymerization with other monomers or as a feed for oxidative dehydrogenation (col. 1, lines 55-63).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicants' arguments filed on January 6, 2006 have been fully considered but they are not persuasive.

Applicants argue that the provisional rejection is improper because US '844 application excludes other unsaturated compounds in the feed whereas the present application requires n-butene in isobutene oligomerization. The examiner agrees that US '844 requires pure isobutene or isobutene containing no further unsaturated compounds. However, the argument is not persuasive because it would have been obvious to one of ordinary skill in the art that the process in US '844 may be performed in the presence of additional unsaturated compounds depending on desired results, e.g. other oligomer products.

With respect to claims 15-17, Applicants argue that US '844 does not suggest preparing 1-butene. The argument is not persuasive because a position is taken that it would have been obvious to one of ordinary skill in the art that the process in US '844 may be performed in the presence of additional unsaturated compounds depending on desired results, e.g. other oligomer products. Therefore, 1-butene would be recovered during the separation of the products from oligomerizing isobutene and other unsaturated compounds, e.g., 1-butene, contained in the feed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

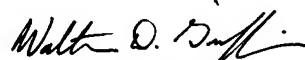
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to In Suk Bullock whose telephone number is 571-272-5954. The examiner can normally be reached on Monday - Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I.B.


Walter D. Griffin
Primary Examiner